To: Washburn, Edward[Washburn.Edward@epa.gov]
Cc: Gay, Santina[Gay.Santina@epa.gov]; Conmy, Robyn[Conmy.Robyn@epa.gov]; Duncan, Bruce[Duncan.Bruce@epa.gov]; Combes, Marcia[Combes.Marcia@epa.gov]; Soderlund, Dianne[Soderlund.Dianne@epa.gov]
From: Fordham, Tami
Sent: Wed 2/24/2016 8:15:31 PM
Subject: RE: Overview of ORD/SHC Oil Research Program
SHC 3.62 Oil Research Program jan2016_conmy.pdf

Thanks Ed, I am looping in Marcia Combes as she is our lead on this issue. Marcia is out on leave this week and she may already know Robyn, if not it would be great for them to connect. Dianne is also copied in the event she would like to be a part of any future discussion on this topic.

Thanks for tracking this down and helping make connections.

Tami

From: Washburn, Edward
Sent: Wednesday, February 24, 2016 11:04 AM
To: Fordham, Tami <Fordham.Tami@epa.gov>
Cc: Gay, Santina <Gay.Santina@epa.gov>; Conmy, Robyn <Conmy.Robyn@epa.gov>; Duncan, Bruce <Duncan.Bruce@epa.gov>
Subject: FW: Overview of ORD/SHC Oil Research Program

Tami

RE: any ORD work on oil dispersants and health effects in the Arctic ----

– I might have some tangentially relevant ORD work, and a contact for you - Robyn Conmy at ORD in Cincinnati. Robyn is willing to talk with you in more depth about this, as related to the Arctic conditions. Hope this helps you. Ed

---

Attached please find Robyn Conmy's overview of ORD's oil research program, which she presented during a SHC research program partner call held 1/13/16, plus here's an embedded link to the call, with her Overview beginning at ~2:20:
https://epawebconferencing.acms.com/p58kxz8o5bc/

FYI, "Arctic dispersant use" appears on Slide 3 and is listed as an "Emerging Issue."

To: Fordham, Tami[Fordham.Tami@epa.gov]
Cc: Gay, Santina[Gay.Santina@epa.gov]; Conmy, Robyn[Conmy.Robyn@epa.gov]; Duncan, Bruce[Duncan.Bruce@epa.gov]
From: Washburn, Edward
Sent: Wed 2/24/2016 8:03:39 PM
Subject: FW: Overview of ORD/SHC Oil Research Program
SHC 3.62 Oil Research Program jan2016_conmy.pdf

Tami

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To: Conmy, Robyn[Conmy.Robyn@epa.gov]
Cc: Raghuraman Venkatapathy[raghuraman.venkatapathy@ptsied.com]; SORIALGA@UCMAIL.UC.EDU[SORIALGA@ucmail.uc.edu]; p.campo-moreno@cranfield.ac.uk[p.campo-moreno@cranfield.ac.uk]; Holder, Edith[holder.edith@epa.gov]; Deshpande, Ruta (deshpars)[deshpars@mail.uc.edu]; zhang4y5@mail.uc.edu[zhang4y5@mail.uc.edu]; Zhuang, Mobing (zhuangmg)[zhuangmg@mail.uc.edu]
From: Devi Sundaravadivelu
Sent: Fri 1/15/2016 9:22:23 PM
Subject: Re: GoMRI presentations
1.Finasol-YuZhang.pptx
2.Heavy Fuel Oil_MobingZhuang.pptx
3.Dilbit-Ruta.pptx
4.Solidifier-Devi.pptx

Robyn,
We were able to finish the posters today.
I've attached 4 posters for EPA clearance review. They are:

1. Biodegradation of Finasol OSR 52 and Dispersed Alaska North Slope Crude Oil at 5 C and 25 C *(WA 0-05, Task 1.1)*
2. Biodegradability of Dispersed Heavy Fuel Oil at 5 and 25 C *(WA 0-05, Task 1.1)*
3. Biodegradability Of Diluted Bitumen Oil By Kalamazoo River Cultures In Freshwater *(WA 0-05, Task 1.2)*
4. Evaluation of Sorbent and Solidifier Properties and their Impact on Oil Removal Efficiency *(WA 0-05, Task 2.3)*

The abstracts were originally cleared on 9/16/2015 (ORD-013915, ORD-013917, ORD-013912, and ORD-013921 respectively). Please let me know if there are any questions.

Thanks,
Devi

On Fri, Jan 15, 2016 at 10:26 AM, Conmy, Robyn <Conmy.Robyn@epa.gov> wrote:

> Ruta, Devi, Yu, and Edie,
>
> Hopefully you are all close to having your presentations ready for EPA clearance review. I will be entering your presentations into the review system on Tuesday. So, although today was the deadline to me, you don't need to send to me until Tuesday morning if you need a few more days to finish. That being said, I do not know if Edie still would like to see them today, so please check with her on that.
>
> In any case, I will look for your presentations by Tuesday.
>
> Cheers,

Robyn

<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>

Robyn N. Conmy, Ph.D.

Research Ecologist

USEPA/NRMRL/LRPCD

26 West MLK Drive

Cincinnati, Ohio 45268

513-569-7090 (office)

513-431-1970 (EPA mobile)

727-692-5333 (Personal mobile)

conmy.robyn@epa.gov

Biodegradation of Finasol OSR 52 and Dispersed Slope (ANS) Crude Oil at 5 °C and 25 °C

Yu Zhang[1], Pablo Campo[2], Ruta Suresh Deshpande[1], Mobing Zhuang[1], and Robyn N. Conmy

1. Department of Biomedical, Chemical and Environmental Engineering, University of Cincinnati, 2901 Woodside
2. Cranfield Water Science Institute, Cranfield University, Cranfield MK43 0AL, UK
3. U.S. Environmental Protection Agency, National Risk Management Risk Laboratory, 26 W. MLK Drive Cincinnati

Background

- Pollution caused by oil spills is devastating for the environment as spilled oil could prevent the photosynthesis and respiration of marine organisms (Nagarajan, 2008).
- Dispersants are one of the essential oil spill countermeasures and they can also stimulate the biodegradation of spilled oil.
- Chemical dispersants act on spilled oil by breaking down slicks into micron- sized buoyant droplets with high surface area, which facilitates evaporation and biodegradation (Prince et al., 2013; National Research Council, 2005).
- Although dispersants have been applied on a large scale in many responses, their use is still controversial.

Objectives

- To investigate the effect of Finasol OSR 52 dispersant on the biodegradation of ANS crude oil.
- To study effect of temperature on the biodegradation of Finasol OSR 52, dispersed ANS and ANS alone.

Method and Materials

Medium: Sterile artificial seawater, GP2, 100 mL in each flask.

Subtracts:

- 28 µg/L ANS Crude Oil
- Finasol and ANS volumetric DOR 1:24

Sampling Event:

- 5 ℃ – 0, 2, 4, 8, 12, 16, 24, 32, 40, 48 and 56 days.
- 25 ℃ – 0, 2, 4, 8, 12, 16, 24, 32, 40 and 48 days

Orbital shakers Rotated Speed: 200 rpm

Table 1. Summary of Experimental Layout

Temp (°C)	Treatment	Sampling Events	Sample Replicates	Total Experimental Units (EU)
5	Finasol alone	11	3	33
	ANS dispersed by Finasol	11	3	33
	ANS alone	11	3	33
	Killed ANS control	1	3	3
	Killed Finasol control	10	3	30
	Killed ANS + Finasol control	10	3	30
			Subtotal EU's	162
25	Finasol alone	10	3	30
	ANS dispersed by Finasol	10	3	30
	ANS alone	10	3	30
	Killed ANS control	1	3	3
	Killed Finasol control	9	3	27
	Killed ANS + Finasol control	9	3	27
			Subtotal EU's	147
			Total EU's for Finasol	309

Method and Materials (cont'd)

Cultures:

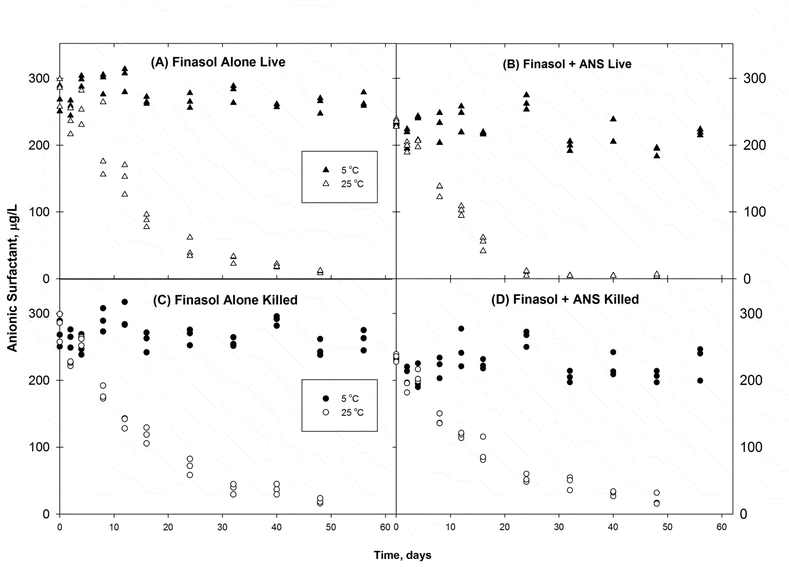
- 0.5 mL of the appropriate mixed culture in each flask.
- 5 °C Culture (Cryo), isolated from a depth of 1240 m of the GOM
- 25 °C Culture (Meso), isolated from the top 5 m of the GOM
- Killed Controls for all the treatments were sterilized with 500 mg/L of NaN_3

Target Compounds:

- ***Anionic surfactant***.
- ***Alkanes***: Branched (Pristane and Phytane), Normal paraffins (n-C_{10-35})
- ***PAHs***: C_{0-4} naphthalenes, C_{0-3} dibenzothiophenes, $C0-3$ fluorenes, C_{0-4} napthbenzothiophenes , C_{0-4} phenanthrenes/anthracenes, C_{0-2} pyrenes, and C_{0-4} chrysenes

Results

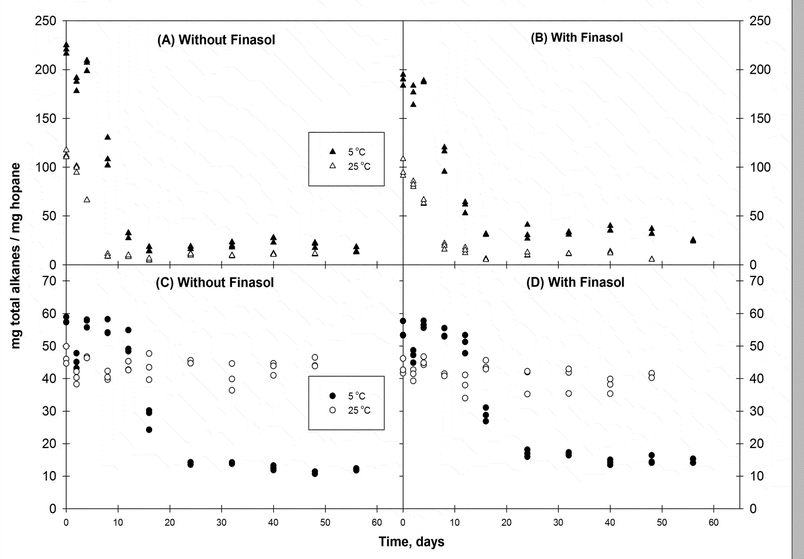
Figure 1. Disappearance of surfactant in the absence (A, C) and presence (B, D) of ANS at 5 °C and 25 °C. Live treatments are in panel A and B, whereas killed controls are in panels C and D.



- At 25 °C, anionic surfactant biodegradation was fast in the replicates with or without oil.
- At day 32, the extent of removal exceeded 98% and 90% for Finasol + ANS and Finasol treatments, respectively.
- Conversely, the dispersant remained in all the 5 °C treatment.
- As shown in Fig. 1 (panels C and D), the surfactant's disappearance at 25 °C may be the result of hydrolysis (Campo, 2013).

Results (cont'd)

Figure 2. Biodegradation of hopane-normalized total alkanes (A, B) and PAHs (C, D) at both temperatures without (A, C) and with (B, D) Finasol dispersant.



- Over 90% of the total alkane fraction was biodegraded for ANS alone and ANS dispersed with Finasol at both temperatures (Fig. 2, panels A and B).
- The cryo culture metabolized 76% and 64% of the total PAHs in ANS alone an ANS dispersed with Finasol respectively (Fig. 2, panels C and D). While at 25 °C, the PAHs persisted in both oil alone and dispersed oil treatments.

Discussion and Future Work

Discussion:

- At 5 °C, the cryo culture could not metabolize the dispersant.
- The total alkanes biodegraded faster at 25 °C both in the presence and absence of dispersant.

Future Work:

To explain the PAHs persistence at 25 °C.

Acknowledgements

The research was funded by U.S. Environmental Protection Agency under Contract EP-C-11-006, Pegasus Technical Services, Inc.

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Biodegradability of Dispersed Heavy Fuel Oil

Mobing Zhuang[1], Gulizhaer Abulikemu[1], Pablo Campo-Moreno[2], Makram Suidan [3]*,
Albert D. Venosa (retired)[4], and Robyn N. Conmy[4]

1. University of Cincinnati, 2901 Woodside Drive, Cincinnati, OH 45221, USA
2. Cranfield Water Science Institute, Cranfield University, Cranfield, Beds, MK43 0AL, UK
3. Faculty of Engineering and Architecture, American University of Beirut, Beirut, Lebanon
4. U.S. Environmental Protection Agency, NRMRL, 26 W. MLK Drive Cincinnati, OH, 45268, USA

Background

- Fuel oil is produced by blending heavy residual oils with a lighter oil to meet specifications for viscosity and pour point. Compared to lighter oils, the high density and viscosity of fuel oil make it less susceptible to dispersion and biodegradation.
- Heavy fuel oil spills could cause more serious damage to the environment and be more difficult to clean.
- Chemical dispersion of heavy oil has been widely studied in various types of tests. Results indicated that high viscosity affected dispersant effectiveness negatively, especially at low temperature [1-4].
- It is also noteworthy that biodegradation studies of dispersed oils have been mostly conducted with C9500 on light to medium crudes with American Petroleum Institute gravity (API) values around 30 [5-8].

Objective

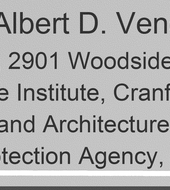
- Laboratory experiments were conducted to study the biodegradability of Intermediate Fuel Oil 120 (IFO-120) dispersed by Corexit 9500 (C9500) at 5 and 25 °C. The biodegradability of alkanes and aromatics in IFO-120 (API: 17.46) at both temperatures was studied in the presence and absence of dispersant.

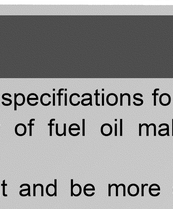
Experimental Setup

- Dispersed oil and oil alone treatments were studied. Triplicate killed controls (KCs) for both treatments sterilized with 500 mg/L of sodium azide were also included.
- The 5 °C culture (cryo) was isolated from water close to the plume location at a depth of 1240 m near the Macondo wellhead. The 25 °C culture (meso) was isolated from water within the top 5 m from the water surface in the vicinity of the wellhead. Both cultures were collected from Golf of Mexico on July 31, 2010, enriched in the lab, and stored at -80 °C.
- Dispersed oil was prepared following the Baffled Flask Test method.
- The flasks were placed on orbital shakers operated at 200 rpm and kept at the corresponding temperatures 5 or 25 °C. At a given sampling event, triplicate flasks of each live treatment and KCs were sacrificed.
- Scarified samples were extracted, concentrated, and finally analyzed for alkanes and PAHs by GC/MS.

Table 1. Summary of Experimental Layout

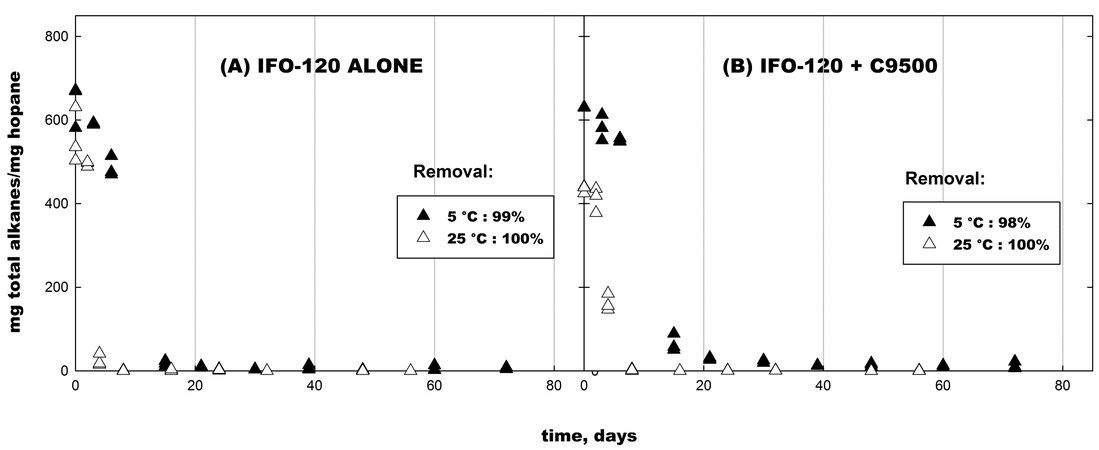
Temperature	Treatment	Sampling Events	Sample Replicate	Experimental Units
5 °C	IFO-120 dispersed by C9500	10	3	30
	IFO-120 alone	10	3	30
	IFO-120 + C9500 Killed control	10	3	30
	IFO-120 Killed control	1	3	3
Sampling Events: days 0, 3, 6, 15, 21, 30, 39, 48, 60, 72				
25 °C	IFO-120 dispersed by C9500	9	3	27
	IFO-120 alone	9	3	27
	IFO-120 + C9500 Killed control	9	3	27
	IFO-120 Killed control	1	3	3
Sampling Events: days 0, 2, 4, 8, 16, 24, 32, 48, 56				





Results

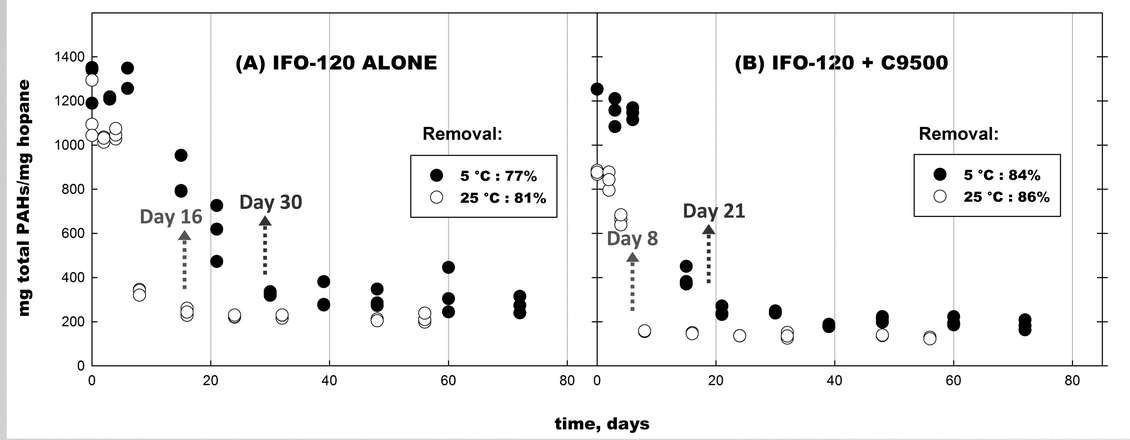
Figure. 1: Biodegradation of hopane-normalized total alkanes at 5 °C and 25 °C in the absence (A) and presence (B) of C9500



- **The extent of removal of total alkanes was similar in the absence and presence of C9500** (5 °C: 99% vs. 98%, 25 °C: 100% vs. 100%).

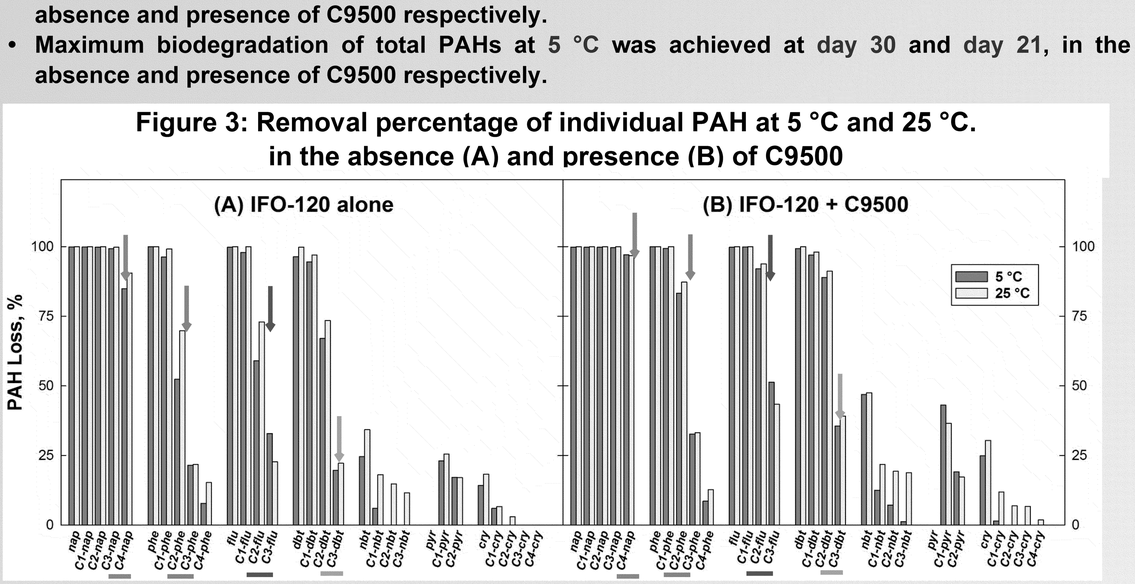
Results (Continued)

Figure. 2: Biodegradation of hopane-normalized total PAHs at 5 °C and 25 °C in the absence (A) and presence (B) of C9500



- **The extent of removal of total PAHs was lower in the absence of C9500 than in its presence at both temperatures** (5 °C: 77% vs. 84%, 25 °C: 81% vs. 86%).
- **Maximum biodegradation of total PAHs at 25 °C was achieved at day 16 and day 8, in the absence and presence of C9500 respectively.**
- **Maximum biodegradation of total PAHs at 5 °C was achieved at day 30 and day 21, in the absence and presence of C9500 respectively.**

Figure 3: Removal percentage of individual PAH at 5 °C and 25 °C. in the absence (A) and presence (B) of C9500



- It was also observed that **the % removal of C_4-nap, $C_{2\text{-}3}$-phe, $C_{2\text{-}3}$-flu, and C_3-dbt was higher in the presence of C9500**, regardless of temperature, as depicted in Figure 3.

Discussion and Conclusion

- The addition of C9500 did not enhance the biodegradation of alkanes in IFO-120.
- **C9500 had a positive impact on the biodegradation of aromatics in IFO-120 at both temperatures.**
- PAHs comprising two or three fused rings have a certain solubility in water (e.g., nap = 30 mg/L), and their uptake occurs mostly within the aqueous phase [9].
- **Surfactants could increase the transfer rate of these more soluble compounds from the oil to aqueous phase by forming small oil droplets, which increase the interfacial area. Chemical dispersion increased the extent of removal of some less soluble PAH compounds**, which could be critical in terms of the aromatics toxicity issue.

Acknowledgements and References

The research was a product of the U.S. Environmental Protection Agency's National Risk Management Research Laboratory (NRMRL) and was partially funded by EPA, NRMRL, Cincinnati, OH, under Pegasus Technical Services, Inc. Contract EP-C-11-006.

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Contact: Mobing Zhuang, zhuangmg@mail.uc.edu

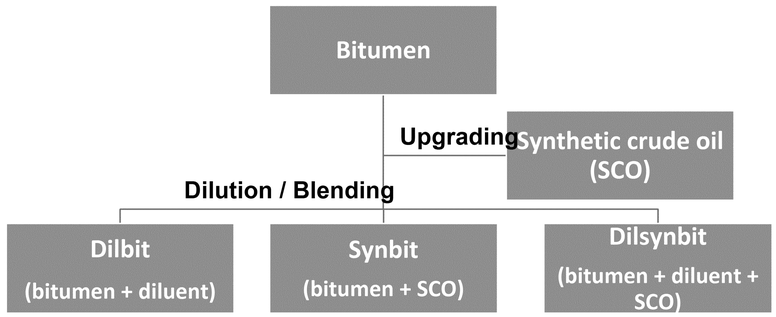
Biodegradability Of Diluted Bitumen Oil By Kalamazoo Freshwater

Ruta Suresh Deshpande[1], Pablo Campo-Moreno[2], Robyn N. Conmy[3]

1. Department of Biomedical, Chemical and Environmental Engineering, University of Cincinnati, Cincinnati
2. Cranfield Water Science Institute, Cranfield University, Cranfield MK43 0AL, UK
3. U.S. Environmental Protection Agency, National Risk Management Risk Laboratory, Cincinnati, OH

Introduction

- Petroleum products derived from the Canadian oil sands are in limelight owing to the proposal of the Keystone pipeline expansion to the Gulf of Mexico and major spills (Kalamazoo, 2010 and Mayflower, 2013).
- Oil sands are unconventional petroleum deposits made of sand, clay, water and highly viscous bitumen.
- Bitumen is altered for transportation.



- Dilbit – bitumen (~75%) + diluent (~25%)
- Diluents - naphtha, natural gas condensate, light hydrocarbons

	Density (kg/m^3)	Viscosity (cSt)	API gravity
Bitumen	~1010	760,000	< 10 °
Diluent	< 800	<1	> 40 °
Dilbit	**~925**	**~350**	**~20 °**

- King *et al.* (2014), Cobanli *et al.* (2015) reported biodegradation of dilbit whereas reports by Yang *et al.* (2011), Crosby *et al.*(2013), and USEPA (2013) suggested otherwise.

Objectives

- To study the effect of temperature on the biodegradability of dilbit oils.
- To compare of the degradation of alkanes, polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbon (TPH) present in different dilbit oils.

Materials, Method, and Set up

Dilbit Oils
- Cold Lake 1A (CLB)
- Western Canadian Select 2B (WCS)

Microbial Culture
- Kalamazoo River Culture
- 5 °C culture - Cyro
- 25 °C culture - Meso

Media
- Fresh water media - Bushnell Hass broth

Treatment

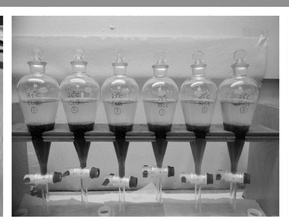
Dilbit oils (0.7 g/L) and microbial culture (0.5 mL) were spiked into sterile media (100 mL)

Experimental setup
- Sampling days for 25 °C - 0, 2, 4, 8, 12, 16, 20, 28, 35, 42, 54, and 60
- Sampling days for 5 °C - 0, 2, 4, 8, 16, 24, 32, 40, 48, 56, 62, and 72
- Kill controls to account for abiotic loss

Summary of Experimental Layout

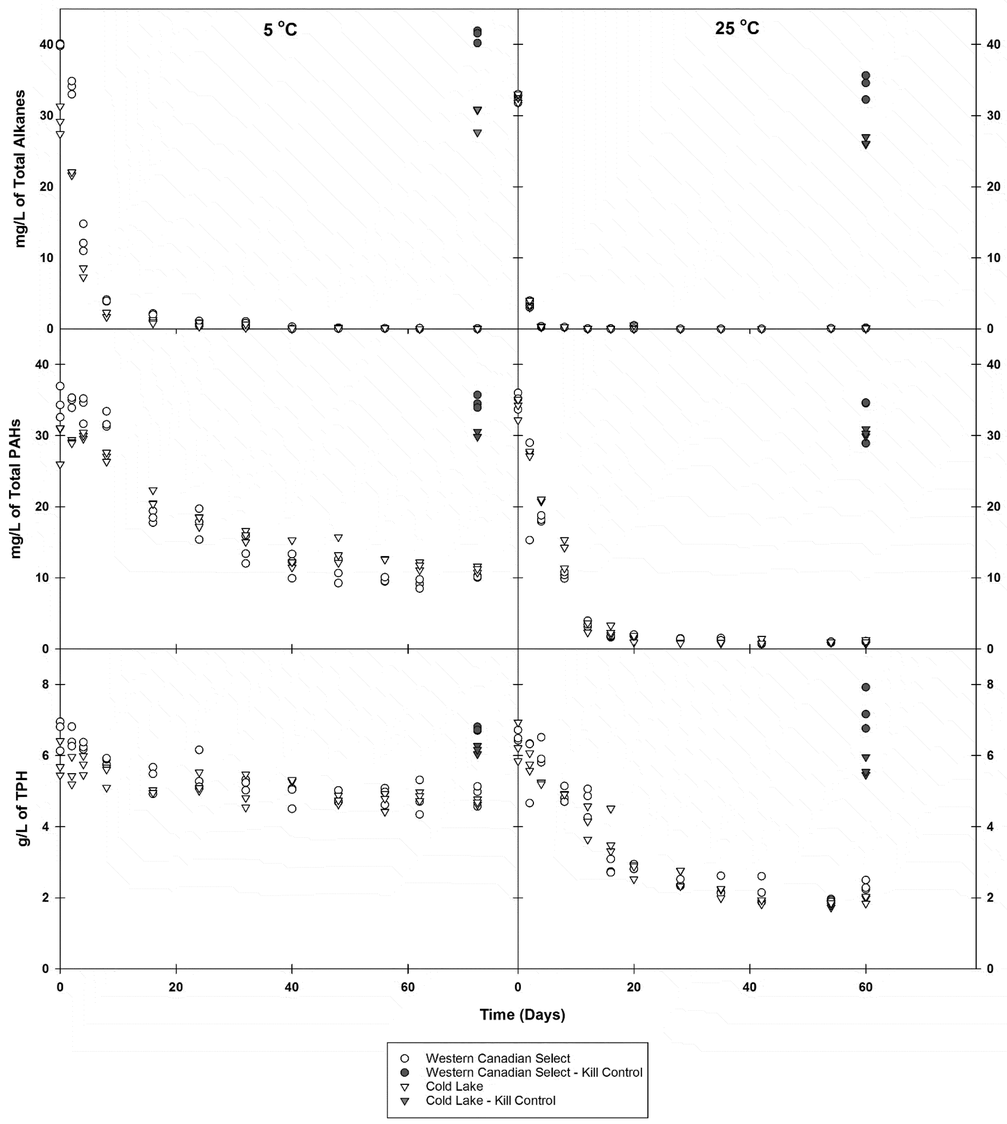
Temp	Treatment	Sampling Events	Sample Replicate	Total Experimental units (EU)
5 °C	Dilbit	12	3	36
5 °C	Kill Control	1	3	3
		Subtotal EU's		39
25 °C	Dilbit	12	3	36
25 °C	Kill Control	1	3	3
		Subtotal EU's		39
Total EU's for one type of dilbit				78






Results

On each sampling day bacterial activity was stopped by adding NaN_3. Broth was extracted using DCM and then concentrated. Extracts were analyzed by GC/MS/MS for alkanes and PAH as well as by GC-FID for TPH.



Discussion

- The trend of degradation is similar for both dilbit oils
- Total alkanes almost disappeared by day 2 for 25 °C and by day 4 for 5 °C
- PAH degradation is much slower at 5 than 25 °C
- Nearly complete PAH removal is observed at 25 ° and more than 60% removal is achieved by day 72 at 5 °C
- In terms of TPH concentration, at 5 °C there is no apparent difference whereas at 25 °C, TPH concentrations reduced by more than half.
- Concentrations for kill control samples are similar to the day 0 samples which shows that the reduction in alkanes, PAHs, and TPH is solely due to biodegradation.

Acknowledgement

Funding for this research was provided in part by EPA, National Risk Management Research Laboratory (NRMRL), Cincinnati OH, under Pegasus Technical Services Inc. Contract No. EP-C-11-006.

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To: Conmy, Robyn[Conmy.Robyn@epa.gov]; Barron, Mace[Barron.Mace@epa.gov]
From: Holder, Edith
Sent: Tue 5/31/2016 7:43:39 PM
Subject: RE: dispersant volume

Would that be Corexit 9500A or Corexit 9500B?

Edie

From: Conmy, Robyn
Sent: Tuesday, May 31, 2016 2:02 PM
To: Barron, Mace <Barron.Mace@epa.gov>
Cc: Holder, Edith <holder.edith@epa.gov>
Subject: RE: dispersant volume

We will send 1 L of Corexit and Finasol. Thanks!

R

<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>

Robyn N. Conmy, Ph.D.

Research Ecologist

USEPA/NRMRL/LRPCD

26 West MLK Drive

Cincinnati, Ohio 45268

513-569-7090 (office)

513-431-1970 (EPA mobile)

727-692-5333 (Personal mobile)

conmy.robyn@epa.gov

From: Barron, Mace
Sent: Tuesday, May 31, 2016 1:16 PM
To: Conmy, Robyn <Conmy.Robyn@epa.gov>
Subject: RE: dispersant volume

One liter if that is no problem.

From: Conmy, Robyn
Sent: Tuesday, May 31, 2016 10:30 AM
To: Barron, Mace <Barron.Mace@epa.gov>
Subject: dispersant volume

How much do you want sent to Hydrosphere?

<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>/<>

Robyn N. Conmy, Ph.D.

Research Ecologist

USEPA/NRMRL/LRPCD

26 West MLK Drive

Cincinnati, Ohio 45268

513-569-7090 (office)

513-431-1970 (EPA mobile)

727-692-5333 (Personal mobile)

conmy.robyn@epa.gov

To: thomas.s.coolbaugh@exxonmobil.com[thomas.s.coolbaugh@exxonmobil.com]; WGala@chevron.com[WGala@chevron.com]; paul.page@uk.bp.com[paul.page@uk.bp.com]; Oliver.Pelz@bp.com[Oliver.Pelz@bp.com]; Sofia.Lamon@anadarko.com[Sofia.Lamon@anadarko.com]; thmc@statoil.com[thmc@statoil.com]; Hague@api.org[Hague@api.org]; patrick.peavler@cobaltintl.com[patrick.peavler@cobaltintl.com]; khho@statoil.com[khho@statoil.com]; Melissa.Simpson@bp.com[Melissa.Simpson@bp.com]; Samuel.Walker2@bp.com[Samuel.Walker2@bp.com]; DDanmeier@chevron.com[DDanmeier@chevron.com]; tim.j.nedwed@exxonmobil.com[tim.j.nedwed@exxonmobil.com]; martin.a.cramer@conocophillips.com[martin.a.cramer@conocophillips.com]; Jonathan.Naile@shell.com[Jonathan.Naile@shell.com]; Yannick.autret@total.com[Yannick.autret@total.com]; cortiscooper@alum.mit.edu[cortiscooper@alum.mit.edu]; Kathryn.Maness@anadarko.com[Kathryn.Maness@anadarko.com]; victoria.broje@shell.com[victoria.broje@shell.com]; mhartley@chevron.com[mhartley@chevron.com]; Mike.Drieu@anadarko.com[Mike.Drieu@anadarko.com]; yannick.mervant@external.total.com[yannick.mervant@external.total.com]; ABess@chevron.com[ABess@chevron.com]; DOEV@statoil.com[DOEV@statoil.com]; karl.g.anderson@shell.com[karl.g.anderson@shell.com]; thomas.f.parkerton@exxonmobil.com[thomas.f.parkerton@exxonmobil.com]; Karolien.Debusschere@la.gov[Karolien.Debusschere@la.gov]; gina.saizan@la.gov[gina.saizan@la.gov]; Charles.Armbruster@la.gov[Charles.Armbruster@la.gov]; Ernie_Shirley@deq.state.ms.us[Ernie_Shirley@deq.state.ms.us]; GSpringer@adem.state.al.us[GSpringer@adem.state.al.us]; John.S.Johnson@dep.state.fl.us[John.S.Johnson@dep.state.fl.us]; bryan.koon@em.myflorida.com[bryan.koon@em.myflorida.com]; greg.pollock@glo.texas.gov[greg.pollock@glo.texas.gov]; steve.buschang@glo.texas.gov[steve.buschang@glo.texas.gov]; Conmy, Robyn[Conmy.Robyn@epa.gov]; Barron, Mace[Barron.Mace@epa.gov]; joseph.b.loring@uscg.mil[joseph.b.loring@uscg.mil]; forest.a.willis@uscg.mil[forest.a.willis@uscg.mil]; michael.k.sams@uscg.mil[michael.k.sams@uscg.mil]; Pasquale.Roscigno@boem.gov[Pasquale.Roscigno@boem.gov]; rebecca.green@boem.gov[rebecca.green@boem.gov]; walter.johnson@boem.gov[walter.johnson@boem.gov]; david.moore@bsee.gov[david.moore@bsee.gov]; stephen_spencer@ios.doi.gov[stephen_spencer@ios.doi.gov]; Joyce_Stanley@ios.doi.gov[Joyce_Stanley@ios.doi.gov]; barry_forsythe@fws.gov[barry_forsythe@fws.gov]; dave.westerholm@noaa.gov[dave.westerholm@noaa.gov]; scott.lundgren@noaa.gov[scott.lundgren@noaa.gov]; charlie.henry@noaa.gov[charlie.henry@noaa.gov]; brad.Benggio@noaa.gov[brad.Benggio@noaa.gov]; ebovert@lsu.edu[ebovert@lsu.edu]; swanndl@auburn.edu[swanndl@auburn.edu]; john.caplis@bsee.gov[john.caplis@bsee.gov]
Cc: ahwalker@seaconsulting.com[ahwalker@seaconsulting.com]; BGardiner@ramboll.com[BGardiner@ramboll.com]; jjoeckel@seaconsulting.com[jjoeckel@seaconsulting.com]; Deborah Crowley[Deborah.Crowley@rpsgroup.com]; Debbie French McCay[Debbie.McCay@rpsgroup.com]
From: Jill Rowe
Sent: Tue 5/31/2016 5:43:46 PM
Subject: RE: API CRA D3 Projects and BSEE OSRP Project Review
API D3 Program Update - Final 5.31.16.pdf

All,

Attached please also find the D3 presentation for today's call at 2pm ET (1pm CT). I have also posted this on the ftp site using the information below.

FTP Address: http://ftp.oilmap.com or ftp://ftp.oilmap.com (if use FileZilla or similar FTP client interface)

Username: CRA_TAC

Password: APIcra

Today's D3 presentation is in **/Meetings/2016_05-31 Prior Projects**.

Thank you,

Jill

** Please note that my email address has changed to Jill.Rowe@rpsgroup.com. Please use this address going forward.

Jill Rowe
Director of Environmental Risk Assessments - RPS ASA
55 Village Square Drive
South Kingstown, RI 02879-8248
USA
Tel: +1 (401) 789-6224 x 329

Fax: +1 (401) 789-1932

Cell: +1 (401) 286-2788
Email: Jill.Rowe@rpsgroup.com
www: asascience.com | rpsgroup.com

A member of the RPS Group plc

From: Jill Rowe
Sent: Tuesday, May 31, 2016 12:01 PM
To: 'thomas.s.coolbaugh@exxonmobil.com'; 'WGala@chevron.com'; 'paul.page@uk.bp.com'; 'Oliver.Pelz@bp.com'; 'Sofia.Lamon@anadarko.com'; 'thmc@statoil.com'; 'Hague@api.org'; 'patrick.peavler@cobaltintl.com'; 'khho@statoil.com'; 'Melissa.Simpson@bp.com';

'Samuel.Walker2@bp.com'; 'DDanmeier@chevron.com'; 'tim.j.nedwed@exxonmobil.com'; 'martin.a.cramer@conocophillips.com'; 'Jonathan.Naile@shell.com'; 'Yannick.autret@total.com'; 'cortiscooper@alum.mit.edu'; 'Kathryn.Maness@anadarko.com'; 'Victoria.Broje@shell.com'; 'mhartley@chevron.com'; 'Mike.Drieu@anadarko.com'; 'yannick.mervant@external.total.com'; 'ABess@chevron.com'; 'DOEV@statoil.com'; 'karl.g.anderson@shell.com'; 'thomas.f.parkerton@exxonmobil.com'; 'Karolien.Debusschere@la.gov'; 'gina.saizan@la.gov'; 'Charles.Armbruster@la.gov'; 'Ernie_Shirley@deq.state.ms.us'; 'gspringer@adem.state.al.us'; 'John.S.Johnson@Dep.state.fl.us'; 'bryan.koon@em.myflorida.com'; 'greg.pollock@glo.texas.gov'; 'steve.buschang@glo.texas.gov'; 'conmy.robyn@epa.gov'; 'Barron.mace@epa.gov'; 'joseph.b.loring@uscg.mil'; 'Forest.A.Willis@USCG.Mil'; 'Michael.K.Sams@uscg.mil'; 'Pasquale.Roscigno@boem.gov'; 'rebecca.green@boem.gov'; 'walter.johnson@boem.gov'; 'david.moore@bsee.gov'; 'Stephen_spencer@ios.doi.gov'; 'Joyce_Stanley@ios.doi.gov'; 'barry_forsythe@fws.gov'; 'dave.westerholm@noaa.gov'; 'scott.lundgren@noaa.gov'; 'charlie.henry@noaa.gov'; 'Brad.Benggio@noaa.gov'; 'ebovert@lsu.edu'; 'swanndl@auburn.edu'; 'john.caplis@bsee.gov'
Cc: 'ahwalker@seaconsulting.com'; 'BGardiner@ramboll.com'; 'jjoeckel@seaconsulting.com'; Deborah Crowley; Debbie French McCay
Subject: RE: API CRA D3 Projects and BSEE OSRP Project Review

All,

In preparation for our call today at 2pm ET (1pm CT), attached please find our presentation and a document summarizing the relevant BSEE OSRP project results. The D3 chairs will be presenting a different set of slides for their summary of the API D3 Subsea Dispersants Injection Program Research. These documents can also be found on the ftp site using the information below:

FTP Address: http://ftp.oilmap.com or ftp://ftp.oilmap.com (if use FileZilla or similar FTP client interface)

Username: CRA_TAC

Password: APIcra

Today's presentation is in **/Meetings/2016_05-31 Prior Projects**.

The memo outlining the relevant BSEE OSRP Project results is in **/Task 04 Oil Spill Modeling**.

Also, I have put further background documents on the SIMAP and OILMAPDeep models (French McCay et al. 2015 and Spaulding et al. 2015, respectively) in **/Task 04 Oil Spill Modeling/Background.**

Below is the call-in information again for your convenience.

Call-information for Tuesday, May 31st from 2-4pm ET

Webinar: https://global.gotomeeting.com/join/588139589

Call-in numbers:

United States (toll-free): 1 877 309 2070

Norway (toll-free): 800 69 055

United Kingdom (toll-free): 0 800 031 4727

Access Code: 588-139-589

Please let me know if you have any questions and we look forward to speaking with you today.

Thanks,

Jill

** Please note that my email address has changed to Jill.Rowe@rpsgroup.com. Please use this address going forward.

Jill Rowe
Director of Environmental Risk Assessments - RPS ASA
55 Village Square Drive
South Kingstown, RI 02879-8248
USA
Tel: +1 (401) 789-6224 x 329

Fax: +1 (401) 789-1932

Cell: +1 (401) 286-2788
Email: Jill.Rowe@rpsgroup.com
www: asascience.com | rpsgroup.com

From: Jill Rowe
Sent: Monday, May 23, 2016 12:33 PM
To: 'thomas.s.coolbaugh@exxonmobil.com'; 'WGala@chevron.com'; 'paul.page@uk.bp.com'; 'Oliver.Pelz@bp.com'; 'Sofia.Lamon@anadarko.com'; 'thmc@statoil.com'; 'Hague@api.org'; 'patrick.peavler@cobaltintl.com'; 'khho@statoil.com'; 'Melissa.Simpson@bp.com'; 'Samuel.Walker2@bp.com'; 'DDanmeier@chevron.com'; 'tim.j.nedwed@exxonmobil.com'; 'martin.a.cramer@conocophillips.com'; 'Jonathan.Naile@shell.com'; 'Yannick.autret@total.com'; 'cortiscooper@alum.mit.edu'; 'Kathryn.Maness@anadarko.com'; 'Victoria.Broje@shell.com'; 'mhartley@chevron.com'; 'Mike.Drieu@anadarko.com'; 'yannick.mervant@external.total.com'; 'ABess@chevron.com'; 'DOEV@statoil.com'; 'karl.g.anderson@shell.com'; 'thomas.f.parkerton@exxonmobil.com'; 'Karolien.Debusschere@la.gov'; 'gina.saizan@la.gov'; 'Charles.Armbruster@la.gov'; 'Ernie_Shirley@deq.state.ms.us'; 'gspringer@adem.state.al.us'; 'John.S.Johnson@Dep.state.fl.us'; 'bryan.koon@em.myflorida.com'; 'greg.pollock@glo.texas.gov'; 'steve.buschang@glo.texas.gov'; 'conmy.robyn@epa.gov'; 'Barron.mace@epa.gov'; 'joseph.b.loring@uscg.mil'; 'Forest.A.Willis@USCG.Mil'; 'Michael.K.Sams@uscg.mil'; 'Pasquale.Roscigno@boem.gov'; 'rebecca.green@boem.gov'; 'walter.johnson@boem.gov'; 'david.moore@bsee.gov'; 'Stephen_spencer@ios.doi.gov'; 'Joyce_Stanley@ios.doi.gov'; 'barry_forsythe@fws.gov'; 'dave.westerholm@noaa.gov'; 'scott.lundgren@noaa.gov'; 'charlie.henry@noaa.gov'; 'Brad.Benggio@noaa.gov'; 'ebovert@lsu.edu'; 'swanndl@auburn.edu'; 'john.caplis@bsee.gov'
Cc: 'Debbie French McCay'; 'ahwalker@seaconsulting.com'; 'BGardiner@ramboll.com'; 'jjoeckel@seaconsulting.com'; 'Deborah Crowley'
Subject: API CRA D3 Projects and BSEE OSRP Project Review

All,

We would like to have our next call with the TAC and API D3 subcommittee on Tuesday, May 31st from 2-4pm ET. The items to be discussed on this call will be 1) a review of the recent D3 projects and 2) an overview of the BSEE OSRP project results that are relevant to this current API CRA project (as discussed during our TAC kickoff call on May 11th). The call-in information for that is below and I will be sending out a invite for your calendars.

Call-information for Tuesday, May 31st from 2-4pm ET

Webinar: https://global.gotomeeting.com/join/588139589

Call-in numbers:

United States (toll-free): 1 877 309 2070

Norway (toll-free): 800 69 055

United Kingdom (toll-free): 0 800 031 4727

Access Code: 588-139-589

Also, as a reminder please note that we are currently requesting the following items from you:

1) Comments from the TAC on the modeling plan by Wednesday, May 25th. Please email your comments and I will collate everything together. We will respond to all of the comments at one time.

2) Response to the poll on whether you are planning to attend the Clean Gulf conference and whether you would be available to participate in the workshop beginning late afternoon on Thursday (Nov. 3rd) and over the full day on Friday (Nov. 4th). I have heard back from several of you, but for those of you who have not yet responded, please try to get me your response by May 25th.

Please let me know if you have any questions.

Thank you,

Jill

** Please note that my email address has changed to Jill.Rowe@rpsgroup.com. Please use this address going forward.

Jill Rowe
Director of Environmental Risk Assessments - RPS ASA
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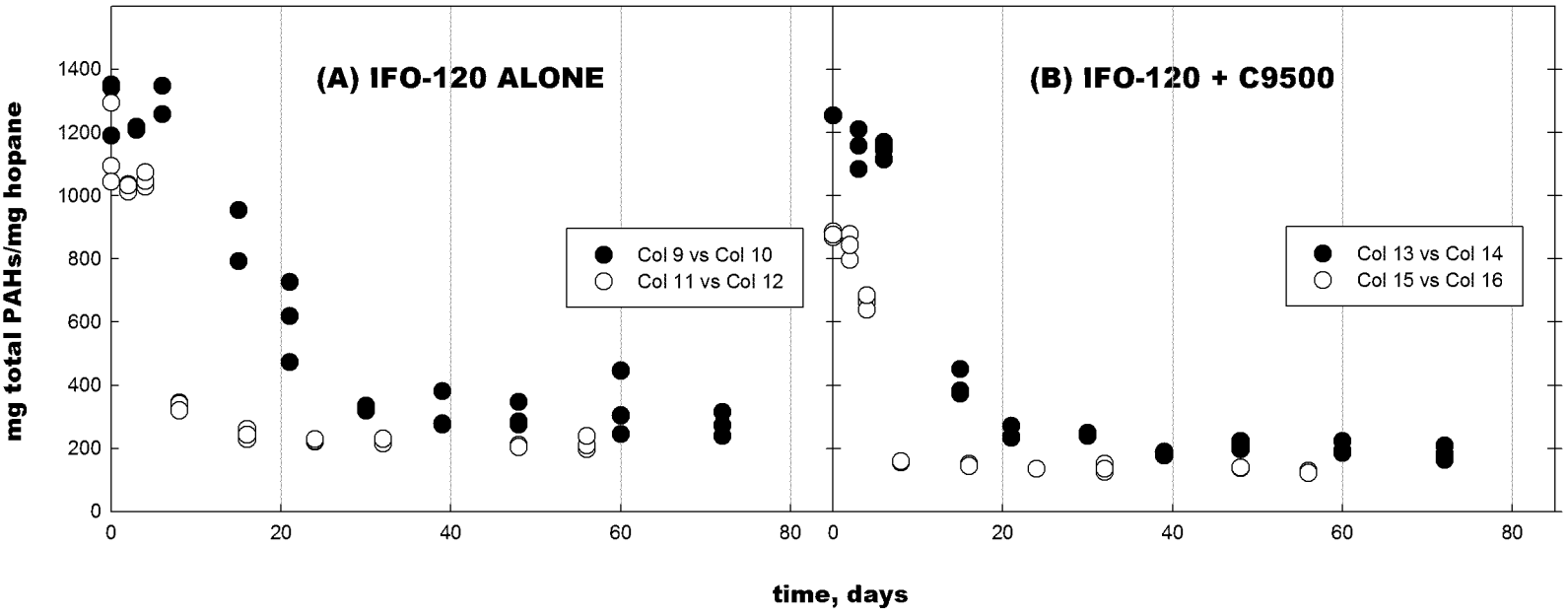
South Kingstown, RI 02879-8248
USA
Tel: +1 (401) 789-6224 x 329

Fax: +1 (401) 789-1932

Cell: +1 (401) 286-2788

Email: Jill.Rowe@rpsgroup.com
www: asascience.com | rpsgroup.com

A member of the RPS Group plc


(A) IFO-120 ALONE
(B) IFO-120 + C9500
mg total PAHs/mg hopane
time, days
Col 9 vs Col 10
Col 11 vs Col 12
Col 13 vs Col 14
Col 15 vs Col 16
0
200
400
600
800
1000
1200
1400
0
20
40
60
80